

After the addition of some lines of N III the striking fact becomes evident that the classes OW5, OW6, and OW7 show only helium and nitrogen in their spectra.

A comparatively strong oxygen spectrum accompanies the carbon in Beals' later classes. The characteristic pair of O VI,  $3^2S-3^2P$ , with the wave-lengths from the vacuum spark,  $\lambda\lambda$  3811,3, 3834,2, is certainly recognized in the lines of OW9,  $\lambda\lambda$  3815, 3835; OW8 seems not to be observed in this region. The calculated multiplets of OV  $3^3P-3^3D$  and  $3p^3P-3d^3P$  correspond closely to the strong OW8 lines  $\lambda$  5592 and  $\lambda$  5470, and several other coincidences with transitions in OV are suggested. The ultra-violet spectrum of OW9 partly coincides with the O IV spectrum as observed in the vacuum spark,  $\lambda\lambda$  3736,8, 3729,0, 3725,8, 3563,4, 3560,4, 3411,8, 3403,6, 3385,6, 3381,3. As might be expected from the above succession, O III and probably some traces of O II are present in BWO. However, most of the lines previously identified as O II are certainly due to carbon and higher ionised oxygen.

A more detailed comparison will be published later.

I am, Gentlemen,

The Physical Laboratory  
of the University of Uppsala,  
1932 March 8.

Yours faithfully,  
BENGT EDLÉN.

## OBITUARY.

### *Guillaume Bigourdan.*

GUILLAUME BIGOURDAN was born 1851, and became an Assistant in the Observatory of Toulouse in 1877, going to Paris in 1879. He took part in the Transit of Venus Expedition to Martinique in 1882. He was a most painstaking observer at the equatorial, and made many observations of planets and comets. For 25 years he hardly missed a night at the telescope, and determined the positions of no less than 6380 nebulae. For this work he was awarded the Gold Medal of the Royal Astronomical Society in 1919. He was interested in the historical side of Astronomy, and among other works brought out Pingré's 'Celestial Annals of the 17th Century.' In 1902 he, with M. Lancelin, made a determination of the

longitude of Paris-Greenwich in parallel with a determination by Dyson and Hollis. On the introduction of the wireless dissemination of time by General Ferrié from the Eiffel Tower a letter from M. Bigourdan to the Astronomer Royal pointed out the desirability of receiving the signals at Greenwich. The Bureau de l'heure was established at Paris in 1912, and in 1919 was brought into relationship with the Astronomical and Geodetic Unions. M. Bigourdan became Director, and remained in that capacity till 1928.

M. Bigourdan married a daughter of Admiral Mouchez, Director of the Paris Observatory, who survives him.

M. Bigourdan had many astronomical friends in England, who had the pleasure of meeting him at numerous conferences in Paris and at the meetings of the International Astronomical Union.

F. W. D.

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*Gustave Ferrié.*

GENERAL GUSTAVE FERRIÉ died on Feb. 16 at the age of 63. He was a pioneer in wireless telegraphy. In 1898 he was present when Marconi made experiments in wireless between Wimereux and Dover. In 1900 he commenced to create the French Military Radio-telegraphic Service. It is not necessary to chronicle here his technical discoveries and achievements. Astronomers and geodesists are under the greatest obligation to him for the distribution of accurate time. The installation of the Eiffel Tower time-service was in 1910. In 1912 and 1913 an international service was inaugurated, with headquarters at Paris. The first long arc of longitude by wireless was carried out between Paris and Washington from 1913 Oct.-1914 Feb. After the War the Bordeaux service was started. Schemes for the determination of the longitudes of a number of the principal observatories were brought forward by General Ferrié and carried out in October and November 1926, and a proposal for a re-determination in 1933 has been set on foot by him.

General Ferrié attended a number of Astronomical and Geodetic Congresses, generally as Chairman of the Commission on Longitudes. He was a most courteous chairman and very friendly colleague.

F. W. D.